

**The University of Jordan
School of Engineering**



Department	Course Name	Course Number	Semester
Mechanical Engineering	Advanced Combustion	0904717	

2005 Course Catalog Description

Instructors

Name	E-mail	Sec	Office Hours	Lecture Time

Text Books

	Text book 1	Text book 2
Title		
Author(s)		
Publisher, Year, Edition		

References

Books	1. Borman and Ragland, "Combustion Engineering", Int. Ed., McGrawHill., 1998. 2. Stephen R. Turns, "An Introduction to Combustion: Concepts and Applications" 2nd Ed., McGrawHill., 2000 3. Glassman I., "Combustion", 3rd Ed., Academic Press, 1996 4. Kuo K. K., "Principles of Combustion", Wiley, 1994 5. Williams A. F., "Combustion Theory", 2nd Ed., Advanced Book Program, 1985 6. Handouts and web based materials.
Journals	
Internet links	

Prerequisites

Prerequisites by topic	
Prerequisites by course	
Co-requisites by course	
Prerequisite for	

Topics Covered

Week	Topics	Chapter in Text	Sections
	Introduction to Combustion and Thermochemistry.		
	Chemical Kinetics.		
	Some Important Chemical Kinetics.		
	Laminar Premixed flames.		
	Simulation of S I Engine.		
	Turbulent Premixed Flames.		
	Pollutant Emissions.		
	Detonation.		

Course Outcomes

1.
2.
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Evaluation					
Assessment Tools		Expected Due Date		Weight	
Paper Presentation				10%	
Homework/ Project				20%	
Midterm Exam				30%	
Final Exam				40%	
Contribution of Course to Meet the Professional Components					
This course aims at enabling the student to introduce the effect of chemical equilibrium and dissociation into heat of combustion calculations. Modelling of chemical reaction rates and development of reaction mechanism. Modelling for the internal combustion engine processes. Understand the physical and chemical effects on flame speed and thickness.					
Relationship to Mechanical Engineering Program Objectives (MEPOs)					
MEPO1		MEPO2		MEPO3	MEPO4
Updated by ABET Committee, 2024					